

## ABSTRACT OF THE DISCLOSURE

5 A non-invasive, *in vivo* method for measuring sub-clinical or clinical inflammation or irritation of mammalian skin from exposure of the skin to a topical skin care product, exposure to an external aggression or combinations thereof is disclosed. In one embodiment, the method includes the steps of collecting eicosanoid from the skin using a non-invasive collection device and analyzing levels of eicosanoid collected from the skin. A kit for measuring a marker of skin irritation or inflammation is also disclosed. The kit includes a non-invasive collection device for collecting secretions from the skin surface, and an immunoassay for measuring level of eicosanoid in the secretions.

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